State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Water System Project
Ion Exchange (NaCl Regeneration) Submittal Checklist

Form 3300-263 (R 3/05)

Notice: Information requested on this form is required for water system projects under s. 281.61, Wis. Stats. Failure to provide complete information to the Department will result in the project not being eligible to receive funding through the safe drinking water loan program. Personal information collected will be used for program administration and enforcement and may be provided to requesters as required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Water System General Information

Location of Installation

Well Number(s)

Treatment Plant Name

Purpose of Installation: (select all that apply)

☐ Hardness Reduction ☐ Radium Reduction ☐ Gross Alpha Reduction ☐ Other _____

Treatment Building Design [s. NR 811.29]

Is the floor elevation 6 inches above grade? [s. NR 811.29(1)(c)] ☐ Yes ☐ No

Is the floor elevation 24 inches above regional flood elevation? [s. NR 811.29(1)(c)] ☐ Yes ☐ No

Is the floor elevation 12 inches above the nearest sanitary sewer manhole rim elevation? [s. NR 811.29(1)(h)] ☐ Yes ☐ No

Is the building provided with heat? [s. NR 811.29(4)] ☐ Yes ☐ No

Is the building provided with dehumidification? [s. NR 811.29(6)] ☐ Yes ☐ No

Do building doors open outward? [s. NR 811.29(1)(b)] ☐ Yes ☐ No

Are the treatment building and treatment processes provided with auxiliary power? [s. NR 811.31(1)] ☐ Yes ☐ No

Auxiliary Power Type:

☐ Diesel generator _____ Kilowatt ___ Double containment for fuel Intrusion alarm(s)? ☐ Yes ☐ No
☐ Natural gas generator _____ Kilowatt Motion sensor(s)? ☐ Yes ☐ No
☐ Separate substation feeds
☐ Other _____

Design Operating Parameters

Raw Water Concentrations:

Hardness	___ ___ ___ . ___ ___	Sample Date	____ / ____ / _____
Radium	___ ___ ___ . ___ ___	Sample Date	____ / ____ / _____
Gross Alpha	___ ___ ___ . ___ ___	Sample Date	____ / ____ / _____
Iron	___ ___ ___ . ___ ___	Sample Date	____ / ____ / _____
Other: _____	___ ___ ___ . ___ ___	Sample Date	____ / ____ / _____

Design Treated Water Concentrations:

Hardness	___ ___ ___ . ___ ___
Radium	___ ___ ___ . ___ ___
Gross Alpha	___ ___ ___ . ___ ___
Iron	___ ___ ___ . ___ ___
Other: _____	___ ___ ___ . ___ ___

Design Blending Ratio:

Treated Water	_____ gpm
Untreated Water	_____ gpm
Ratio	_____

Softening Design

Treatment Redundancy:

Number of treatment units provided _____

Are there alternate complying sources of water? ☐ Yes ☐ No

Can the treatment units be bypassed? ☐ Yes ☐ No

Is pretreatment required for iron removal? [s. NR 811.52(2)] ☐ Yes ☐ No _____

Are the softeners located above grade? [s. NR 811.29(1)(c)] ☐ Yes ☐ No _____

Number of zeolite softeners _____

Size of Softeners:

Total tank height _____

Straight sidewall height or length, as applicable _____

Diameter _____

Internal coating(s) manufacturer & numbers _____

Internal coating(s) NSF approved? [s. NR 811.07(4)(f)] ☐ Yes ☐ No

Softener media surface area _____

Softening media volume _____

Media depth [s. NR 811.52(2)(c)] _____

Media support description _____

Distribution header description _____

Underdrain collection system description [s. NR 811.52(2)(f)] _____

Softening rate [s. NR 811.52(2)(d)] _____

Media specifications [s. NR 811.52(2)(i)] _____

NSF approval for media? [s. NR 811.07(4)(f)] ☐ Yes ☐ No

Are the treated water lines metered? [s. NR 811.52(2)(h)] ☐ Yes ☐ No

Are the bypass water lines metered? [s. NR 811.52(2)(h)] ☐ Yes ☐ No

Are the backwash lines metered? [s. NR 811.52(2)(j)3] ☐ Yes ☐ No

Is the bypass line equipped with an automatic proportioning valve? [s. NR 811.52(2)(h)] ☐ Yes ☐ No

Regeneration Design

Type: ☐ Automatic
☐ Manual

Initiated By _____

Means for Valve Operational Control _____

	Backwash [s. NR 811.52(2)(d)]	Brining	Slow Rinse	Fast Rinse
Rate	gpm	gpm	gpm	gpm
Time	minutes	minutes	minutes	minutes
Volume				

Total Wastewater Volume (per unit) _____

Total Wastewater Volume (all units) _____

Regeneration Design (continued)

Source for Regeneration Water: (select all that apply)

- ☐ Distribution system
- ☐ Well
- ☐ Other – Specify: _____

If the well is used for regeneration water, are chemical feeders shut down? ☐ Yes ☐ No

If chemical feeders are not shut down, will the feed rate be readjusted during regeneration to prevent overfeed? ☐ Yes ☐ No

Regeneration exchange rate (in pounds of NaCl per kilogram of hardness) [s. NR 811.52(2)(b)] _____

Salt storage tank volume [s. NR 811.52(2)(j)1] _____

Brine storage tank volume _____

Is the brine storage tank property constructed? [s. NR 811.52(2)(j)1] ☐ Yes ☐ No

Watertight access manhole(s)? ☐ Yes ☐ No

Bottom of tank at least 2 feet above groundwater? ☐ Yes ☐ No

Screened vent terminating at least 24 inches above grade? ☐ Yes ☐ No

Screened overflow terminating downward at least 12 inches above grade? ☐ Yes ☐ No

Brine tank water fill lines provided with RPZ valve or located at least 2 pipe diameters above overflow level? ☐ Yes ☐ No

Tank construction material(s) _____

Is there a brine sampling faucet? ☐ Yes ☐ No

Pounds of salt per regeneration _____

Brining lines metered? [s. NR 811.52(2)(j)3] ☐ Yes ☐ No

Regeneration frequency per unit _____

Number of gallons treated between regenerations (per unit) _____

Wastewater Disposal

Radium Concentration of Water: (in pCi/l)

Volume of treated water between regeneration cycles in gallons _____

Concentration of radium-226 in raw water _____

Concentration of radium-228 in raw water _____

Concentration of total uranium in raw water _____

Volume of regeneration wastewater _____

Concentration of radium-226 in wastewater _____

Concentration of radium-228 in wastewater _____

Concentration of total uranium in wastewater _____

Unity equation < 1? (See guidance documents) ☐ Yes ☐ No

Provide unity equation: _____

Wastewater Disposal (continued)

Regeneration Wastewater Disposal [s. NR 811.82]:

- ☐ Sanitary sewer
- ☐ Ground surface – WPDES permit number _____
- ☐ Surface water – WPDES permit number _____
- ☐ Septic tank/drainfield

Holding Tank Sizing [s. NR 811.82]:

Tank volume _____

Discharge location from tank _____

☐ Gravity discharge ☐ Pumped discharge

Sanitary sewer capacity _____

Means to regulate flow _____

24" air gap for softener discharge? ☐ Yes ☐ No

Water trap in tank drain line? ☐ Yes ☐ No

Sampling and Monitoring

Sample Taps [s. NR 811.52(2)(L)]:

Is a smooth end sample tap provided for the raw water source?	☐ Yes	☐ No
Is a smooth end sample tap provided for each treatment unit inlet?	☐ Yes	☐ No
Is a smooth end sample tap provided for each treatment unit outlet?	☐ Yes	☐ No
Is a pressure gauge provided for each treatment unit inlet?	☐ Yes	☐ No
Is a pressure gauge provided for each treatment unit outlet?	☐ Yes	☐ No
Is a smooth end sample tap provided for the final blended water?	☐ Yes	☐ No

What type of monitoring is provided to ensure that treatment objectives are being achieved? [s. NR 811.05(1)(a) and (b)]

- ☐ Radium – Frequency _____
- ☐ Hardness – Frequency _____
- ☐ Gross Alpha – Frequency _____
- ☐ Iron – Frequency _____
- ☐ Other – Describe _____ Frequency _____

Construction Inspection

On-site inspection to be provided by

Certification

I hereby certify that the above information and attachments are accurate and complete to the best of my knowledge.

Signature of Professional Engineer	Date Signed	Printed Name of Professional Engineer

Wisconsin P.E. Number	Telephone Number	Fax Number